



**Implementation of the Eco-Metaverse in Indonesia:
Sharia Economic Perspective**

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Abstract: This article discusses the implementation of the eco-metaverse in Indonesia, with a focus on the economic aspects of the metaverse. This article begins by providing an overview of the metaverse concept and its potential impact on various sectors, including education, commerce, and entertainment. Then, this article examines the principles of metaverse economics, such as the concepts of values, principles and norms, and how these concepts can be applied in the context of the metaverse. This research uses a qualitative research paradigm with a sharia economic approach. Data and information were collected through interviews, literature studies and focus group discussions (FGD). The condition of the eco-metaverse in Indonesia has begun to develop, although it is not yet running optimally. Several ways of using the Metaverse that can be considered in the context of sharia economics are Education and Knowledge, Communication and Empowerment, Economics and Business, and Socio-Cultural Life. Eco-metaverse development can be carried out through the waqf and syirkah application model on the sharia banking platform in the metaverse. Apart from that, another model being developed is a platform for selling MSME products through metaverse where sellers and buyers can interact directly virtually. Based on the results and discussion in this research, it is highly recommended to; Explaining sharia-based eco-metaverse applications. There is a need for sharia-based eco-metaverse education, so that more and more people build or join the eco-metaverse. In implementing a sharia-based eco-metaverse, institutions are needed that oversee the consistent application of sharia principles in a transparent and interconnected eco-metaverse.

Keywords: Eco-metaverse, virtual world, digital economy, sharia economics

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Abstrak: Artikel ini membahas tentang penerapan eko-metaverse di Indonesia, dengan fokus pada aspek ekonomi metaverse. Artikel ini diawali dengan memberikan gambaran umum tentang konsep metaverse dan potensi dampaknya terhadap berbagai sektor, termasuk pendidikan, perdagangan, dan hiburan. Kemudian, artikel ini mengupas prinsip-prinsip ekonomi metaverse, seperti konsep nilai, prinsip, dan norma, serta bagaimana konsep-konsep tersebut dapat diterapkan dalam konteks metaverse. Penelitian ini menggunakan paradigma penelitian kualitatif dengan pendekatan ekonomi syariah. Data dan informasi dikumpulkan melalui wawancara, studi literatur dan focus group Discussion (FGD). Kondisi eco-metaverse di Indonesia sudah mulai berkembang meski belum berjalan maksimal. Beberapa cara pemanfaatan Metaverse yang dapat diperhatikan dalam konteks ekonomi syariah adalah Pendidikan dan Pengetahuan, Komunikasi dan Pemberdayaan, Ekonomi dan Bisnis, serta Kehidupan Sosial Budaya. Pengembangan eco-metaverse dapat dilakukan melalui model aplikasi wakaf dan syirkah pada platform perbankan syariah di metaverse. Selain itu, model lain yang dikembangkan adalah platform penjualan produk UMKM melalui metaverse dimana penjual dan pembeli dapat berinteraksi langsung secara virtual. Berdasarkan hasil dan pembahasan dalam penelitian ini, sangat disarankan untuk; Mengembangkan aplikasi eco-metaverse berbasis syariah. Perlu adanya pendidikan eco-metaverse yang berbasis syariah, agar semakin banyak masyarakat yang membangun atau bergabung dengan eco-metaverse. Penerapan eco-metaverse berbasis syariah, diperlukan lembaga yang mengawal penerapan prinsip syariah secara konsisten dalam eco-metaverse yang transparan dan saling berhubungan.

Kata Kunci: Metaverse, dunia virtual, ekonomi digital, ekonomi syariah

Introduction

Study of the metaverse in the development of the developing world economy, especially the digital era 5.0.¹ After Mark Zuckerberg officially announced Facebook Inc. changed its name to Meta Platforms Inc. on October 29, 2021, targeting his company to become the world's first metaverse (metamesta) company, shocking IT and economic business people in the world. In Zuckerberg's concept, the metaverse that is run has very high standards of privacy, parental control, and transparency of data usage. Meta will separate the main digital advertising business from new businesses in Virtual Reality (VR) and Augmented Reality (AR). The application developed by Meta is a 3D concert in the metaverse, in addition to dancing and exercising as if being present with

¹Wikan Dinar Sunindyo, et.al., "Should we build a metaverse for the new capital of Indonesia?" *Heliyon* 10, No. 7 (2024). Baiq Riska Anggi Safitri, et.al., "Regulating Virtual Land Sales in Indonesia's Metaverse," *Indonesian Journal of Law and Economics Review* 19, No. 1 (2024).

other people, developing an unlimited office, being present as a hologram on the side of other people. Zuckerberg will also establish a Meta Physical Store that sells equipment to the metaverse world. Zuckerberg's declaration shook the world of information technology and digital business because the main players in the field claimed that Facebook Inc. had 'stolen a head start' claiming to dominate the metaverse world.

The Zuckerberg effect apparently spread to Indonesia. The metaverse fever also makes IT and business players immediately compete to enter a new realm called the metaverse. It is assumed that the metaverse will find its momentum in Indonesia because Indonesia is a very promising fertile land and is seen as a developed and developing country towards industrialization and downstreaming, so that strengthening is needed in the aspect of utilizing information technology in entering the metaverse realm. Information technology is progressing so rapidly that it has even been able to create a new world order in the metaverse realm. The metaverse realm is described as a universe filled with human avatars which are a reflection of the real world that is 'shifted' into cyberspace. To enter the metaverse, a Virtual Reality (VR) or Augmented Reality (AR) tool is needed.

Metaverse creates its own opportunities in various sectors. Not only the information technology and digital economy sectors, but also in the banking, government, and higher education sectors.² That is why WIR (We Indonesians Rock, Rise, and Rule) was positively triggered. In fact, WIR is not a new player in the digital world. WIR as a giant digital reality technology company (VR, AR, AI) in Southeast Asia that is able to produce programming and AR technology innovations in more than 20 countries in the world, and holds 5 Indonesian AR patents and PCT covering 153 countries. WIR Group is categorized as a Metaverse Companies to Watch in 2022 by FORBES magazine which makes it equal to Microsoft, Apple and Meta.

WIR Group is committed to building the Indonesian Metaverse as evidenced by the Government's trust to build the Indonesian Capital City. In addition, the cities of Jakarta and Bali will also be built in the metaverse realm. The payment system in the Indonesian Metaverse will later be able to use the rupiah currency in the form of rupiah crypto. Even the Indonesian metaverse platform will be introduced on the G20 (General Twenty) Presidency agenda. Likewise, Arutala, a Yogyakarta start-up that is committed to developing metaverse in Indonesia massively. The Direct to Consumer (DTC) start-up engaged in casual clothing uses 3D to measure customers' bodies. Metaverse technology will be used massively in 2023, especially start-up and e-commerce

² Dyan Triana Putra, et.al., "The Existence of The Metaverse Tourism in Indonesia: Between Opportunities and Threats," *Reslaj Religion Education Social Laa Roiba Journal* 6, No. 9 (2024).

businesses such as Gojek and Traveloka. Start-ups in the entertainment sector and content creators, concluded Edward Ismawan, Treasurer of Amvesindo. E-commerce will utilize metaverse technology to trade digital goods used in online games. Metaverse technology is slowly starting to be adopted by a number of industries in Indonesia such as games, fashion, and property, according to Heru Sutadi, Indonesia ICT Institute.

In the banking sector, BNI Tbk. and BRI Tbk. opened branches in the metaverse, indicating that metaverse users need financial transactions, including crypto rupiah.³ In the government sector, the Directorate General of Regional Autonomy (*Direktorat Jenderal Otonomi Daerah/Ditjen Otda*) of the Indonesian Ministry of Home Affairs launched the Regional Autonomy Virtual Consultation (KOVI OTDA) based on metaverse. The Director General of Regional Autonomy, Akmal Malik, said that this step was also intended to reduce the potential for corruption in the scope of regional autonomy services. The Ministry of Villages, Development of Disadvantaged Regions and Transmigration (*Kementerian Desa/PDPT*) also intends to enter the metaverse realm. This was stated by the Deputy Minister of Villages, Budi Arie Setiadi. The policy is intended to raise the potential for rural tourism. The program will be launched on May 19, 2022. The Metaverse Village is located around Borobudur, Magelang Regency, Central Java. Meanwhile, in the higher education sector, the Atma Jaya Catholic University of Indonesia (UNIKA) and the Tri Sakti Media Communication College (STMK) have also adopted the metaverse by collaborating with WIR to enter the metaverse ecosystem.

So far, discussions about economics and information technology have been widely found, but how the economic business in the metaverse realm, let alone measuring the implementation of metaverse in several sectors of life from the perspective of sharia economic values, as well as the offer of a sharia-based metaverse economic model, has hardly been found. From a number of sectors that utilize the metaverse above, it is very urgent to conduct a study.

This research uses a qualitative research paradigm with a sharia economic approach.⁴ Meanwhile, the argument underlying the choice of research objects that focus on the eco-metaverse is because the management of the digital economy carried out by business actors is unique because it tries to measure business implementation in the metaverse realm. The research location in Indonesia was deliberately chosen because there are still few companies that use virtual reality, augmented reality or artificial intelligence, so researchers are optimistic that they can find the data and information they need. Data and information sources were

³ Istianah Zainal Asyiqin, et.al., "Cryptocurrency as a Medium of Rupiah Exchange: Perspective Sharia Islamic Law and Jurisprudential Analysis," *Volksgeist: Jurnal Ilmu Hukum dan Konstitusi* (2024).

⁴ Hafas Furqani, *Metodologi Ekonomi Islam: Membangun Pradigma dan Format Keilmuan*, (Banda Aceh: Naskah Aceh, 2018).

obtained primary and secondary. Primary, data and information are obtained directly from company owners who use metaverse services and metaverse instrument providers. Second, data and information are obtained from other supporting sources or parties related to the research object, such as experts and business consumers. Data and information were collected through interviews, literature studies and focus group discussions (FGD). Researchers observed the display of objective data from companies that opened their businesses in the metaverse. Then directly interview company directors, metaverse instrument providers, customers and experts. In addition, researchers conducted a focus group discussion to search for data and align perceptions with company directors, metaverse instrument providers, customers and experts on the Sharia Metaverse Model as a learning model for further development of the digital economy in Indonesia. The research locus has many choices, including WIR Group as a designer and provider of metaverse tools, Central Bank Indonesia Jakarta as a regulator and supervisor of banking macro principles, and Bank BNI Central Jakarta as one of the banking operational sectors.

Digital Economy and Metaverse

Don Tapscott stated that the digital economy is an economic activity that utilizes digital internet technology. Other terminology that is identical to the digital economy is usually called the internet economy, website economy, digital-based economy, new knowledge economy, or new economy. Related to this digital economy, the Asian Development Bank confirms that the digital economy is aimed at activities that use information and digital knowledge as a leading reference for business products. The virtualization of the economic sector has an impact on the creation of various creative and innovative products in the industrial world.

The phenomenon of the digital economy by utilizing technological instruments has emerged in all business industries and tends to be more accelerative. TechTarget released that the digital economy or internet economy is a new economic wave in the business industry world. The elements of the digital economy that were first published include information and communication technology, e-commerce business, and distribution of goods and services. Don Tapscott identified 12 forms of digital economy that management experts must know including Convergence, Prosumption, Globalization, Internetworking, Innovation, Virtualization, Knowledge, Digitalization, Molecularization, Discordance, Immediacy, and Disintermediation.

Indonesia is a soft target country for the digital economy. The indicator can be seen through the value of digital economy transactions in 2021, which was named the highest transaction in Southeast Asia, which was US\$70 billion, and it can be assumed that it will reach US\$146 billion in 2025. At the same time, there is a 40% share of the Southeast Asian digital economy market in Indonesia.

Due to the very high level of determination of this information technology, almost all service and product sectors have gradually converted themselves to digital, especially in a number of startup businesses, such as Gojek, for example, which emerged in 2010. The emergence of the reality of the digitalization of online transportation companies has actually dragged several companies towards transportation disruption. There is a continuum that is directly proportional between the digital economy and the surge in domestic investment. Research conducted by Google, Bain & Company, and Temasek found that the value of Indonesia's digital economy investment during 2021 was US\$4.7 billion, which exceeded investment in the last four years. The development of the world of information and technology has driven increased business productivity, both in the service sector and the production sector. Repeated investment and reinvestment efforts have great potential to increase productivity and soaring economic income.

From an etymological perspective, metaverse consists of two words, namely meta and verse. Meta means beyond or beyond and verse means universe. So metaverse etymologically means beyond the universe. Another diction found in the Wikipedia online dictionary is metaverse or metamesta. Metaverse, metaversum, meta universe, meta universe or metamesta is a component of the internet world that is made more realistic or as similar as possible to the real world, which began to be developed in the second generation internet world. Metamesta not only refers to the virtual environment in a broader view, it is not only operated by social media companies but the entire spectrum of reality is added. The term metaverse emerged in the early 1990s, which received a lot of negative responses because it was considered a way of developing public relations through the use of speculative, "excessive" or technology-based concepts. Metaverse is currently only adopted by a few technology companies such as Facebook and Microsoft and others, but there are still concerns about its impact on modern society when all person-to-person interactions are effectively only via the internet. In short, Metamesta is a virtual space that can be intentionally created and then explored with other users without meeting in the real world.⁵ In this context, the metaverse is seen as a space that contains material content, so that the metaverse can also be translated as a space that contains material and goes beyond all things perceived by the five senses in this world. Metaverse is a virtual community world that is intentionally constructed to be interconnected with one another. In this community, people can schedule meetings, work, watch movies in theaters, attend music concerts, play, buy land, and do business as they do in the real world using Virtual Reality (VR) or Augmented Reality (AR) technology instruments. These digital business transactions use crypto currency and everyone

⁵<https://id.wikipedia.org/wiki/Metamesta>, (Accessed, 10 August 2022).

will duplicate themselves in the form of an avatar according to their wishes. The term metaverse originated from the 1992 novel *Snow Crash* by Neal Stephenson.

There are two metaverse models that can be used today, namely: a) a metaverse model that allows someone to build an environment from scratch or at the most basic level; and b) a metaverse model that tends to be regular and easy to find such as in online games *Fortnite*, *Animal Crossing* and others. The first metaverse model usually uses a virtual economic system that has creatively integrated cryptocurrency and non-fungible tokens (NFT). According to the *Metaverse journal*, which reports that now there are many NFT users who empower *The Sandbox* or *Decentral* and platforms as a creative place to sell the artwork produced to buyers in the virtual world. While the second metaverse model is usually easy to find because the concept has been applied to various types of online games such as *Roblox* and so on. Although the game developer does not explain that the game that carries the metaverse concept, it uses the same principles as the metaverse, such as meeting and doing activities together in the game to carrying out digital transactions.

Metaverse is a concept of a three-dimensional (3D) universe that combines several different virtual spaces. Metaverse is an example of *Augmented Reality (AR)* technology that allows someone to interact virtually with other people. It can be said that the metaverse is a virtual world that is similar to the real world. Metaverse is one of the technologies that is expected to be used to carry out all types of interactions digitally through computers. This is a new model based on technologies such as augmented reality, mirror worlds, virtual worlds that appear real and alive⁶. The concept of a virtual world that combines cyberspace and reality allows users to interact with each other with various types of digital content in one integrated platform⁷.

Computer science innovation plays a major role in everyday life, transforming and enriching human interactions, communication and social transactions. From the end user perspective, three major waves of technological innovation have been noted centered around the introduction of personal computers, the Internet and mobile devices, respectively. Currently, a fourth wave of computing innovation is underway that relates to spatial (mapping), immersive technologies such as *Virtual Reality (VR)* and *Augmented Reality (AR)*.⁸

⁶ Marc Prieto, et.al. "New Insights in Peer-to-Peer Carsharing and Ridesharing Participation Intentions: Evidence from the "Provider-User" Perspective', *Journal of Retailing and Consumer Services*, 64 (2022), p. 102795.

⁷ Fajar Fauziah, *Sejarah Metaverse Dan Perkembangannya Yang Terus Berlanjut*, *Lampung.Co.Id*, (2023).

⁸ K. Kamenov and others, "The Efficacy of Psychotherapy, Pharmacotherapy and Their Combination on Functioning and Quality of Life in Depression: A Meta-Analysis," *Psychological Medicine* 47, No. 3 (2017), p. 414–25.

Automation is the replacement of human power with automated machine power that is currently developing. The use of metaverse through the Dall E 2 website which allows users to produce a unique image with only certain keyboard inputs. This is one application of metaverse. The application of metaverse is also very developed in the World of Warcraft game where users can sell and buy goods virtually. Similar to the fornite game, users can experience a concert in the metaverse. For technology companies, metaverse opens up unlimited opportunities to realize various types of benefits in ways never imagined before.⁹ Metaverse is based on technologies that enable multisensory interactions with virtual environments, digital objects, and humans. The representational fidelity of XR systems is enabled by stereoscopic displays that are able to convey depth perception allowing for separate and slightly different views for each eye that replicate vision in the physical environment. High-resolution XR displays enable a wide user field of view ranging from 90-180 degrees. XR systems enable active interaction with virtual elements through the use of controllers, users can touch, hold, manipulate, and operate virtual objects. This ability makes them active agents in any educational experience.¹⁰

In the history of human life, the name of the changing era will continue to develop and occur from time to time, so that it requires us to be able to continue to adapt to the changes that occur. In this case, as an example of a change that occurs in digital progress where the changes or progress that occurs are the increasingly sophisticated technology that can be utilized along with existing needs. We can feel and observe the progress of technology today, even the power and progress continue to grow and penetrate all sectors of life, both the economic sector, banking and the business world.¹¹ Digital metaverse is currently popular among the general public and large companies that also feel the presence of metaverse.

According to Fobes, along with the development of technology, the only education system in the world that is influenced by the industrial revolution 4.0 by using digital technology in its learning process is called a network system. This system has the ability to help the teaching and learning process take place without limitations of space and time. The trend of using digital technology in the world of education is growing and influencing the education process through augmented

⁹ Harvia, "Internalisasi Nilai Ekonomi Islam Sebagai Ekosistem Ekonomi Di Era Metaverse," *Journal of Islamics* 2, No. 1 (2022), p. 1–12.

¹⁰ AT Maereg and others, "Wearable Vibrotactile Haptic Device Untuk Diskriminasi Kekakuan Selama Interaksi Virtual," *Frontiers in Robotics and AI*, 4 (2017).

¹¹ Bobby Hartono Putra, "Tinjauan Teologis Ibadah Dalam Metaverse Di Era Pandemi Dan Kemajuan Teknologi," *Syntax Literate : Jurnal Ilmiah Indonesia* 7, No. 5 (2022), p. 2548–1398.

reality/virtual reality/mixed reality, redesigned learning spaces (smartboards), artificial intelligence, and personalized learning.¹²

The term metaverse was first introduced by a science fiction writer named Neal Stephenson in a novel entitled *Snow Crash* in 1992. The novel tells the story of humans as avatars who can interact directly with other avatars in a virtual space with 3D. This novel describes that the virtual world can be connected to the real world, where users can interact with other avatars and can-do various activities like in the real world.¹³

The history of the emergence of metaverse in overcoming the weaknesses of 3D digital that is currently developing, which still has shortcomings, namely limitations in the sensations and experiences felt by users. The low self-perception created by 2D technology makes its users not get a more optimal experience when exploring virtual space¹⁴. In other words, this 3D virtual technology is called metaverse.

The updates that occur in computer science also affect the development of technology that continues to grow. The development of computer science also greatly influences human life which facilitates human interaction both in terms of communication and social transactions. From a perspective of the end user of technology, the main updates made by each center on the introduction of personal computers, the internet and other mobile devices. Currently, the development of innovation in technology is developing which is marked by the emergence of spatial and immersive technologies such as Virtual Reality (VR) and Augmented Reality (AR). This technology is expected to form a paradigm that has the potential for education, remote work business, and entertainment that can be done virtually, the paradigm in question is the metaverse. So it can be defined that the metaverse is a post-realistic universe, a multi-user environment that continuously combines physical realism with digital virtuality. Meanwhile, the role of the metaverse in the world of education has the potential to overcome limitations in teaching and learning activities through 2D learning tools.¹⁵

In 1995, the launch of a game called *Active World* was one of the early examples of the use of the metaverse in the digital world. The game can create avatars with other avatars that can interact in cyberspace. In addition, the development of the metaverse has been adapted in several game media platforms, one of which is the *Roblox* game, where each user can interact, socialize, collaborate or be creative with other avatars through the avatars used in the game. The use of this metaverse can not only be implemented in the form of games but

¹² Ikhwan Akbar Endarto and Martadi, "Analisis Potensi Implementasi Metaverse Pada Media Edukasi Interaktif," *Jurnal Barik* 4, No. 1 (2022), p. 37–51.

¹³ Fajar Fauziah, 'Pengertian Dan Konsep Metaverse', *Lampung.Co*, (2023)

¹⁴ Yose Indarta and others, 'Metaverse: Tantangan Dan Peluang Dalam Pendidikan', *Jurnal Basicedu*, (2022), p. 3351–63.

¹⁵ Stylianos Mystakidis, 'Metaverse', *E. Encyclopedia*, (2022), p. 486–97.

can also be implemented through other media, for example, a music concert held virtually by American singer Justin Bieber in 2021¹⁶.

Basically, the development of the internet also influences and goes hand in hand with the development of the metaverse which continues to increase from year to year. This is due to the existence of the metaverse which is the same as the virtual world whose use can only be used via the internet. Although the emergence of the metaverse in the 1990s, it is still used in 2021.¹⁷

One of the products released by Adidas with this metaverse concept is Virtual clothing. The German Fashion Brand announced the development of a new product from the company, namely Adidas Virtual Gear through an NFT connection in the form of clothing designed for use in the metaverse. As explained in its press release, Adidas has designed its NFT collection so that it can be used by other virtual accounts. Each virtual Gear asset is guaranteed to be interoperable and can collaborate with other projects. This collection from Adidas is able to adapt to the currently trending metaverse environment, so that 'Virtual Gear' is ready for all aspects of Web 3.¹⁸ There are 16 variants of the Gear virtual jacket that have been launched by Adidas. In the Kompas news, it was stated that the Adidas NFT on the metaverse that collaborated with Bored Ape Yacht Club, Gemoney, and PUNKS Comic was priced at 02 ETH or around 812 USD which if converted to Rupiah is equivalent to 11.1 million. The NFT collection that was sold was 30,000 and immediately sold out and generated a total profit of 23 million US dollars or more than 330 billion Rupiah.¹⁹

The development of the metaverse in 2023 will bring many new developments in this industry. In that year, you can also prepare to see the latest developments in Full Body Haptik Suit technology. This technology has been used by organizations such as NASA and SpaceX to simulate extreme environments²⁰. This year, the metaverse can be said to be a little dim, because artificial intelligence in the form of Artificial Intelligence (AI) such as ChatGPT has been present and widely discussed. However, based on research conducted by Market Watch, it is written that the global metaverse market can be promising for the next five years. In 2023, the metaverse is estimated to grow by 3,990.69 million USD and is predicted to reach 432,284.41 million USD in 2028.²¹

¹⁶ Ikhwan Akbar Endarto and Martadi, "Analisis Potensi Implementasi Metaverse Pada Media Edukasi Interaktif.

¹⁷ Rifda Arum, 'Mengenal Perkembangan Metaverse Serta Bagaimana Cara Kerjanya', *Gramedia Blog*, 2021.

¹⁸ Kaonang Glen, 'Adidas Luncurkan Virtual Gear, Koleksi NFT Pakaian Untuk Metaverse', *Hybrid. Co.Id*, 2022.

¹⁹ Yefta Chrisptroherus Asia Sanjaya, 'Gabung Metaverse, Adidas Langsung Luncurkan Koleksi NFT Terbaru Artikel Ini Telah Tayang Di Kompas.Com Dengan Judul "Gabung Metaverse, Adidas Langsung Luncurkan Koleksi NFT Terbaru', *Kompas.Com*, 2021.

²⁰ Meta Nesia, 'Prediksi Tren Metaverse Di 2023', *MetaNesia*, 2022.

²¹ Buchori Rafsanjani, 'Perkembangan Metaverse Tahun 2023', *Dicoding*, 2023.

In Indonesia itself, the development of the metaverse is being built gradually. One of them is a digital company that is currently developing, namely PT. WIR Asia Tbk (WIR Group) which is one of the Augmented Reality (AR) technology companies, is Virtual Reality (VR) and Artificial Intelligence (AI) which are predicted to be developed in the next five to six years. The development of the WIR Group also involves several parties in Indonesia. One of the collaborating companies is Trisakti Multimedia School or Trisakti Media Communication College as the beginning of the development of metaverse in Indonesia, namely in the education sector metaverse di indonesia yakni pada sektor pendidikan.²²

The development of metaverse in Indonesia is used for virtual activities such as working, shopping online, traveling/vacationing online and others. Metaverse can be said to be a virtual that changes the world. The development of technology that occurs has an impact on the regulation of the economy in a country. Currently, our country does not have regulations that regulate the metaverse world or the laws that regulate it. The law related to metaverse is Law Number 11 of 2008 concerning electronic information and transactions, in conjunction with discussing the provision of legal certainty to users.²³ Currently in Indonesia, the development of increasingly sophisticated technology such as Augmented Reality, Virtual Reality, Metaverse, Artificial Intelligence, and 5G is developing. In its development, the Minister of Communication and Information, Johnny G. Plate, who explained that the development of digital technology in Indonesia already has a legal basis that regulates it, namely the Electronic Information and Transactions Law (ITE) which can provide legal certainty to every user.

Metaverse development in Indonesia has enormous potential for development. Moreover, currently other developed countries are also in the development stage of 3D-based technology. Indonesia also has the potential to develop the metaverse and be able to compete with other developed countries.²⁴ The rapid development of the internet has also influenced the development of metaverse. In addition, the development of the internet has an impact on various other developments in life, both starting from the way of transacting, lifestyle in Indonesia, and other general worlds. The development of the metaverse that connects the real world and the virtual world offers a three-dimensional experience with the advantage that users can interact with each other in the virtual

²² Ikhwan Akbar Endarto and Martadi, "Analisis Potensi Implementasi Metaverse Pada Media Edukasi Interaktif.

²³ Muhammad Abbydzar, et.al., "Metaverse Dalam Pembuatan Dan Penggunaannya : Kegiatan Metaverse Di Bidang Bisnis Online Dan Pengaturannya Di Indonesia", *Comserva Jurnal Penelitian Dan Pengabdian Masyarakat*, 03.01 (2023), p. 48–54.

²⁴ Binus Graduate Program University, 'Mengenal Potensi Riset Perkembangan Metaverse Di Indonesia', *University, Binus Graduate Program*, 2022.

world with the help of Augmented Reality and Virtual Reality technology services.²⁵

Sharia Economic Values and Principles in the Metaverse

Values are a vision of life that is then formulated into actions that should, can, and cannot be done by society.²⁶ argues that this perspective shows that values are a guideline for human life in carrying out social actions based on God's commands, government regulations, or community customs, so that these actions can be recognized in the form of commands and prohibitions. or the ability to carry them out.

Experts' opinions differ about values, but it can be concluded that values: a) the paradigm of life of an individual, community, ummah, or certain institution in a segment of life; b) an instrument of social interaction and transaction; i) a medium of integration and social solidarity; c) the nature or quality of something that is considered good, useful, good, beautiful, and attractive; d) something that is glorified, appreciated, maintained, and maintained; e) as a controller of individual actions; f) becomes a criterion for selecting actions and a benchmark for acting; g) beliefs that give a special character to behavior; h) part of an individual's personality; and i) is something that is considered good.²⁷

Hamid, divides three major components that build sharia economics and describes them as a pyramid with a cone on top.²⁸ Occupying the top position is the philosophy of the system which he calls "value", then the basic value of the system which is called "principle/basis", and the instrumental value of the system which he calls "norm/rule".²⁹ puts forward four values of sharia economics, namely the value of *Ilhiyah* (Divinity), the value of *khalifah* (leadership), the value of balance (*tawazun*), and the value of justice ('adalah). The four values are further described into several principles/basis, namely: First, the Divine value produces the principle/basis of monotheism, aqidah/worship, sharia, tazkiyah (*halal-thayyib*), and absolute complexity. While the negative indicators are atheism, secularism, and eigendom. Second, the value of the caliphate gave birth to the principles/principles of *nubuwwah* (*amanah, shiddiq, fathanah, and tabligh*), *akhlakul karimah* (ethics), *insaniyah, ukhuwwah, ta'awun*, professionalism, free competition, and materialism. Third, the value of balance

²⁵ Ali Ahmad and Windu Gata, "Sentimen Analisis Masyarakat Indonesia Di Twitter Terkait Metaverse Dengan Algoritma Support Vector Machine," *Jurnal JTIK (Jurnal Teknologi Informasi Dan Komunikasi)* 6, No. 4 (2022), p. 548–55.

²⁶M. Arifin Hamid, *Membumikan Ekonomi Syariah Di Indonesia: Perspektif Sosio-Yuridis*, 1st edn (Makassar: eLSAS, 2007, p. 204.

²⁷Husain Insawan, *Perbankan Berbasis Nilai Etika* (Yogyakarta: Deepublish, 2017), p. 38.

²⁸ M. Arifin Hamid, *Membumikan Ekonomi Syariah Di Indonesia*.

²⁹ M. Arifin Hamid, *Membumikan Ekonomi Syariah Di Indonesia*.

(*tawazun*) gave rise to the principle/principle of the middle (*wustha*), Islamic socialism, gratitude, *mudharabah*, and *musyarakah*. Meanwhile, the negative indicators are hedonism, materialism, individualism, and communism. Fourth, the value of justice (*adalah*) includes the principles/principles of justice, equality, and equity. The negative indicators are injustice, discrimination, usury, *gharar*, *maisir*, and *tadlis*. In addition, there is also the value of welfare (*maslahat*) that is proposed.

Kara, mentions four principles in Islamic economics, namely: a) the principle of monotheism; b) the principle of balance; c) caliphate principles; and d) principles of justice.³⁰ Meanwhile, Arifin describes that financial and banking activities are seen as a form of implementation of two teachings of the Koran, namely the principle of *al-Ta'awun* and the principle of avoiding *al-Iktinaz*.³¹ Arifin further explained the three main principles adhered to by sharia banks, namely the prohibition of usury in various forms of transactions; carrying out business or trading activities based on obtaining legal profits according to sharia; and giving zakat. Meanwhile,³² explains the principles of Islamic economic activity, namely the principle of freedom of business, the principle of prohibiting usury, the principle of prohibiting buying and selling that is vague/contains the nature of fraud (*bai' al-gharar*), the principle of prohibiting the abuse of influence to seek wealth, the principle of prohibition of extravagance and luxury, and the principle of prohibition of hoarding wealth. Meanwhile, Metwally in³³ describes the values of Islamic economics, namely the principle that wealth is a trust from God, the principle of fair private ownership, the principle of cooperation as a driver of Islamic economics, the principle of wealth as productive capital, the principle of guaranteeing the needs of society, the principle of fearing Allah and the Day of Judgment, the principle of paying zakat if the ratio and haul are sufficient, and the principle of prohibiting usury. Furthermore,³⁴ is identical to Metwally's opinion, stating that there are at least nine principles adopted by the Islamic economic system, namely: the principle of individual freedom, the principle of the right to property, the principle of economic inequality within reasonable limits, the principle of social equality, the principle of social security, the principle of widespread distribution of wealth, the principle of the prohibition on accumulating wealth, the principle of the prohibition on anti-social

³⁰ Muslimin H Kara, *Bank Syariah Di Indonesia: Analisis Kebijakan Pemerintah Indonesia Terhadap Perbankan Syariah* (Yogyakarta: UII Press, 2005), p. 39.

³¹ M. Arifin Hamid, *Membumikan Ekonomi Syariah Di Indonesia*.

³² Gemala Dewi, *Aspek-Aspek Hukum Dalam Perbankan Dan Perasuransian Syariah Di Indonesia, Edisi Revisi*, 3rd edn (Jakarta: RajaGrafindo, 2006).

³³ Zainul Arifin, *Memahami Bank Syariah: Lingkup, Peluang, Tantangan, Dan Prospek* (Jakarta: Alvabet, 2000), p. 13.

³⁴ Afzalur Rahman, *Economic Doctrines of Islam, Translation Soeroyo Dan M. Nastangin, Doktrin Ekonomi Islam, Jilid I, Cet. I* (Yogyakarta: Dana Bhakti Wakaf, 1995), p. 8.

organizations, the principle of individual welfare and society. Another view, such as ³⁵ puts forward the values of the Islamic economic system, namely: the economy of the wider community will be good if it uses an Islamic framework or norms, values of justice and universal brotherhood, values of fairness in income distribution, and values of individual freedom in the context of social welfare. Likewise, ³⁶ holds three basic principles of Islamic economics, namely: the principle of tauhid (oneness of God), the principle of khalifah (leadership), and the principle of 'adalah (justice). ³⁷ makes ethical axioms, namely: the axiom of unity (*al-tauhid*), the axiom of balance/equality (*al-'adl wa al-ihsan*), the axiom of free will (*al-ikhtiyar*), and the axiom of responsibility (*al-fardh*). Finally, ³⁸ put forward four pillars that are the basis of economic transactions, namely: the pillar of monotheism, the pillar of balance (justice), the pillar of free will, and the pillar of responsibility.

Bank Indonesia Crypto

BNI has opened outlets in the metaverse, and has even displayed its outlets in the Indonesian Capital (IKN). However, it cannot operate yet because IKN has not been fully occupied by government offices and employees. So based on an interview with Iwan Djaya, Marketing Director of PT. Bank BNI, he said that Bank BNI has not yet operated in the IKN Metaverse or in the Metaverse world in general, so it cannot be said that BNI has carried out banking functions in the metaverse. Moreover, BNI Crypto has not been thought of at all as a legitimate transaction tool in the metaverse. Indeed, as an anticipatory step for the future, BNI has a strong commitment to becoming a leading bank that serves financial transactions in the metaverse by looking at the business trends of entrepreneurs in cyberspace. It is not impossible for BNI to position itself as the first bank to open a branch in the metaverse. Moreover, the presence of IKN in the metaverse as the first capital city to declare itself in the metaverse, of course requires banking back-up in order to help meta-citizens and industries that are present to transact in the metaverse. Several industry categories have been present in the metaverse, including the real estate industry, games, convection, music and art, film, automotive, and others. Likewise, meta-citizens who have duplicated themselves through their avatars have been going back and forth in the metaverse world. They

³⁵ Muhammad Syafi'i Antonio, *Bank Syariah: Dari Teori Ke Praktik* (Jakarta: Gema Insani, 2001), p. 7.

³⁶ Umer M. Chapra, M. Umer, *Islam and The Economic Challenge, Translation, Nur Hadi Hasan Dan Rifqi Amar, Islam Dan Tantangan Ekonomi; Islamisasi Ekonomi Kontemporer, Cet. I* (Surabaya: Risalah Gusti, 1999), p. 218.

³⁷ Syed Nawab Haider Naqvi, *Islam, Economic, and Society (London and New York: Kegan Paul Internasional, 1994), Translation M. Saiful Anam Dan Muhammad Ufuqul Mubin, Menggagas Ilmu Ekonomi Islam*, 1st edn (Yogyakarta: Pustaka pelajar, 2003).

³⁸ Ali Yafie, eds, *Fiqih Perdagangan Bebas, Cet. II* (Jakarta: Teraju, 2003), p. 21.

have often held meetings and gatherings, organized music concerts, held weddings and receptions, held road races and other races, and so on, just like humans in the real world. All activities carried out require budgeting and funds using cryptocurrency as a result of conversion from conventional currency or fiat money.

According to a Director of Payment System of Bank Indonesia Pusat was conducted at Bank Indonesia Office. There are 3 legal benchmarks, namely the P2SK Law, currency Law no. 7/2011, Law 23/1999. The principles mandated by the state: 1) the obligation to use the rupiah for all transactions in Indonesia, 2) the authority to BI given by the state to determine legal tender. BI's position clearly outlines that the Rupiah must be used in Indonesia according to Law no. 7, 3) Crypto Assets are not legal tender. According, to him, Crypto can be used, so as long as it is not used for banking transactions, it can be utilized, such as being used as a financial asset or commodity. While the P2SK Law itself never prohibits its use. Crypto is seen as a Digital Financial Asset and its legal standing will be regulated under OJK and BAPEPTI. BI can also categorize Crypto as a security or commodity. How does BI regulate Crypto, grant permits, regulate and supervise? The regulated party, namely the payment service provider according to the 2020 regulation. Any institution that organizes a payment system must obtain permission from BI. Because the Rupiah has been recognized as a legal tender, other payment instruments are declared not recognized, including Crypto. Crypto is not a legal tender.³⁹

Therefore, all Rupiah-based processes and transactions must have BI's permission. In fact, there are banks or non-banks that facilitate the conversion from fiat money to Crypto or vice versa. Although the movement of Crypto is still monitored and supervised by BI. So BI regulates the payment service providers more, not the Crypto material. How to regulate Crypto, OJK can answer according to the P2SK Law. BI collaborates on regulation and supervision of the use of Crypto. If not, BI will be fooled and manipulated by the payment service provider institution and its supervisory agency (OJK). What is regulated by BI is strengthening its risk management, for example reporting PJP (payment service providers). The negative effects are usually used for money laundering, financing terrorism, fraud, unhealthy speculation that shakes the economic system, consumer protection issues, customer data protection, and others to the point of the system, whether it is safe or not. BI does not want a collapse caused by the loss of money and assets of millions of customers worldwide. Something that is declared safe is also broken by hackers. The world of economics and banking absolutely cannot be separated from information technology or digital systems. So Crypto's position is not as a tool, but simply as crypto by considering various

³⁹ Interview with, RR, Director of Payment Systems, Bank Indonesia Pusat, 2024.

things and the consequences above. The explanation above answers the legal position of Crypto.⁴⁰

In the meantime, Digital Rupiah or Electronic Money has been created as the fruit of BI Governor Perry Warjiyo's vision. CBDC (central bank digital currency) issued by BI becomes BI's monetary obligation to anyone who holds it. For digital monetary obligations that enable customers to use this digital money, in simple terms, electronic money can be downloaded via the Playstore, Google Store, etc., then topped up, and then used to make transactions. It can also be used for blockchain technology, distributed nature, used as an engine for settlement. Indeed, not only the form of money is changed, but the digital financial structure is also transformed. If only the form of money is changed, it will be prone to counterfeiting and fraud. Therefore, the financial structure must also be changed. To facilitate transactions in BI Digital Money, just top up, such as GoPay, OVO and Dana.⁴¹

Another option for BI Digital Money is to include it in Blockchain technology, so that the security technology uses cryptography technology. So everything will change and the system will be much more complicated. The implications also need to be measured carefully. Therefore, BI in cryptography technology does not want to rush. Although there are around 90 central banks in the world that are thinking about entering cryptography technology and issuing crypto currency. Even some central banks in the world have been thinking about utilizing this technology since 2011. Among the banks that have transacted Crypto such as the USA, Bahamas, Mauritania, Nigeria. Most are still busy experimenting and thinking about not damaging their own economic system. Gopay does this using Non-Fungible Tokens (NFT). Including the digital game industry when played must buy or top-up digitally using electronic money. Mr. Ryan Ryzaldi's experience when helping the economic development of Palestine. Apparently Palestine does not have a currency and is not allowed to issue its own currency. This means that Palestine does not have economic independence because it does not have its own currency, the same as Timor Leste. The lesson that can be learned from Palestine and Timor Leste, as well as the explanation above, is the emergence of concerns when the rupiah currency, whether fiat money or digital money, is not used in certain regions or even all regions in Indonesia, it will cause a lack of independence and economic sovereignty in Indonesia, as is the case with Palestine which is totally controlled by Israel and Timor Leste which is closely monitored by America.⁴²

⁴⁰ Interview with, RR, Director of Payment Systems, Bank Indonesia Pusat, 2024.

⁴¹ Focus Group Discussions (FGD), August 2024.

⁴² Focus Group Discussions (FGD), September 2024.

Bank Indonesia is based on the Eco-Metaverse

BRI and BNI as part of BI if they want to step into the Metaverse, then their risk management must be strengthened and will be monitored on how they rely on transactions related to rupiah with crypto. For example, the OPT is not fulfilled, then it cannot be left because BI must ensure that the guidelines explained in the previous section must be met. OJK already has these guidelines. Supervision also depends on macro prudential or micro prudential. If macro prudential, then supervision is to BI, and if micro prudential, then supervision is at OJK. Division of authority in supervision. The trend of using crypto must be anticipated carefully because many countries also prohibit transactions using crypto. For example, the Government of the United Kingdom (UK) England prohibits the use and large-scale promotion of crypto. One of the reasons is because the Pound Sterling currency in many foreign exchange transactions is placed lower than Ethereum, for example, which is sometimes priced above 500 million per piece. Although the comparison of the Pound Sterling is gold, not crypto. However, this is quite disturbing, so the government has taken steps to limit the promotion and use of the crypto currency. Indeed, between the Pound Sterling, the US Dollar, and the Rupiah, it is only one payment asset that cannot be compared to crypto because it is only categorized as a financial asset.

Views on cybercrime from hackers who carry out cyber attacks on digital money (electronic money): Between pickpockets and hackers, fiat money pickpockets and digital money hackers. The risk of digital payments is not only limited to the system, but also the sustainability of the nation's economy can be affected. Various modes are used by hackers because the tradition of empathy and wanting to help Indonesians is very high, so that there are requests for "mama ask for credit" which are still sent. This can have an impact on customer accounts being hacked. BI has supervision until "end point security" is ensured to continue running. For example, BI employees have laptops that are definitely controlled by a system controlled by a certain unit at BI. When employees open and close the laptop, it must be ensured that there is no fraud in working or making transactions. Each laptop is used specifically to do work that has been assigned. Cannot be used to communicate with other people such as WA and others. Indeed, its certainty is truly controlled. BI calls it Logic Umbrella, prepare an umbrella before it rains, so that it cannot be attacked from anywhere. So the laptop is guaranteed to be safe and under control when opened and safe and under control when closed. The use of a flash disk to be plugged into a laptop is definitely rejected because its security system is already protected at a high level. This is BI's inherent monitoring system that uses Logic Umbrella. The connectivity path between devices has also been divided in such a way. There are transaction paths, coordination paths, public paths and so on that are completely separate, so that security is guaranteed and certain.

Economic development in Islam can utilize the concept of waqf.⁴³ This is also applied in the sharia Eco metaverse model. This will be helped by the condition where in the metaverse everything is interconnected, so that everyone feels the positive impact of the sharia economy that does not harm anyone. Then provide benefits for everyone who follows it because it will be able to provide welfare.

This waqf concept will provide an opportunity for anyone who joins the ecometaverse to create an area in the metaverse that has joint ownership.⁴⁴ The profits from this waqf are managed by an agency tasked with managing the assets of all people who join the eco-metaverse. Then the results or profits from managing the waqf business in the metaverse will be given to everyone who joins. In the eco-metaverse, a person does not need to pay taxes to the government, so a customer can get sharia economic services without being influenced by any party. The concept of waqf and ecometaverse is able to optimize the welfare of the people who join.

Investment in the eco-metaverse also applies a system called *syirkah*. *Syirkah* is a form of Islamic mixing whose operational form applies the principles of business partnership and profit sharing.⁴⁵ This will certainly help everyone who joins the eco-metaverse to avoid usury practices and will also be given various conveniences from the eco-metaverse. The concept of the eco-metaverse will be able to boost the glory of the sharia economy because it will not be limited by the fiscal policies of a country that have so far limited the regulation of the sharia economy more broadly and comprehensively applied in real-world society. This is because in the metaverse there is no country that provides difficult regulations, because basically the owner of the metaverse is free from the jurisdiction of a country.

An example of an eco-metaverse form or model is a metaverse-based Islamic banking application that can be downloaded by every Islamic bank customer.⁴⁶ In this application, customers will be taken to the metaverse world that provides Islamic bank offices. People can enter the office in this metaverse, like visiting a bank in the real world. Islamic banks can provide various services

⁴³ Prayoga Drajat Pangestu Salim, 'Metaverse_ Titik Balik Kejayaan Ekonomi Islam – Mahanpedia', 2021, 2021. Muttaqin Choiri and Farid Ardyansyah, "The Politics of Waqf Practice in Pesantren Kyai Families in Bangkalan Madura, Indonesia," *El-Usrah: Jurnal Hukum Keluarga* 7, No. 1 (2024).

⁴⁴ Prayoga Drajat Pangestu Salim, 'Metaverse_ Titik Balik Kejayaan Ekonomi Islam – Mahanpedia', 2021, 2021.

⁴⁵ Prayoga Drajat Pangestu Salim, 'Metaverse_ Titik Balik Kejayaan Ekonomi Islam – Mahanpedia', 2021, 2021.

⁴⁶ Slamet Riyaldi, "Penerapan Teknologi Metaverse Pada Bank Syari'ah," *Islamic Business and Finance (IBF)* 3, no. 1 (2022), p. 1–14. Erike Anggareni, et.al., "Utilizing the Banking System for Digital Waqf Behavioral Approach of Millennial Muslims," *El-Usrah: Jurnal Hukum Keluarga* 7, No. 1 (2024).

through this metaverse application, thus providing convenience for Islamic bank customers or clients because they can receive bank services without having to visit the office in the real world. Based on the discussion of the Islamic economic model explained earlier, the metaverse economic management model, especially in the example of this Islamic bank metaverse application, applies the concept of *waqf* and *syirkah*. Where the results of this *waqf* will be used to acquire areas in the metaverse that are jointly owned. This *waqf* will be managed by a charity that is specifically designed to manage joint assets and assets of the entire community in the metaverse, the results of which will then be distributed fairly to each customer who participates in this *waqf*. This result will not be subject to tax on each customer as in the real world, because in the metaverse it facilitates all forms of existing regulations.

The metaverse economic model can also be in the form of an MSME application available in the metaverse. Where if customers open the metaverse application, they will find various types of MSME businesses, for example food. People can see the products they sell in 3D and orders can be made like in the real world, only this is done in the metaverse. Buyers and sellers can easily interact through the virtual metaverse. The prices offered in this MSME will also be relatively cheaper because they implement an Islamic-based buying and selling system. In addition to being sharia-based, the price of each MSME product in the metaverse is not affected by state taxes.

Metaverse is a parallel virtual world that allows social and economic interaction between users in real-time through avatars or digital representations.⁴⁷ The development of metaverse technology has begun to be applied in economic and business activities or what is called eco-metaverse. Eco-metaverse opens up very broad digital economic opportunities, ranging from trading in virtual goods and services, advertising, to investing in digital assets. However, activities in the eco-metaverse also have the risk of being misused for negative purposes if not properly supervised and regulated, such as gambling, fraud, pornography, and other cybercrimes⁴⁸. Therefore, a special eco-metaverse model is needed that is based on Islamic sharia values and ethics. This sharia eco-metaverse model is expected to mitigate these risks and optimize the benefits of the eco-metaverse for the welfare of the community. The following are some important components in the development of the sharia eco-metaverse model. Safe and halal platform. The sharia eco-metaverse platform must be built with a user-friendly interface and

⁴⁷Richmond Anane-Simon and Sulaiman Olusegun Atiku, "Future of Public Sector Enterprises in the Metaverse," in *Multidisciplinary Approaches in AI, Creativity, Innovation, and Green Collaboration*, (2023).

⁴⁸ Aziz Siyaev and Geun Sik Jo, 'Neuro-Symbolic Speech Understanding in Aircraft Maintenance Metaverse', *IEEE* (2021).

features and equipped with strict censorship to prevent content and activities that violate sharia, such as pornography, gambling, fraud, and others.⁴⁹

Conclusion

Based on the results and discussions explained above, the conclusions that can be drawn from this study are. The condition of the eco-metaverse in Indonesia has begun to be developed, although it has not yet run optimally. The eco-metaverse that has started to run is the Alfamind platform, which is a virtual shop application that allows us to have our own sales business, with minimal capital. Meanwhile, the BNI bank platform on metaverse is already available, but has not been plotted. Several ways to utilize Metaverse that can be considered in the context of sharia economics are Education and Knowledge, Communication and Empowerment, Economy and Business, and Social Life and Culture. The development of eco-metaverse can be done through the waqf and Syirkah application model on the sharia bank platform on metaverse. In addition, another model that has been developed is in the form of an MSME product sales platform through metaverse where sellers and buyers can interact directly virtually. Based on the results and discussions in this study, it is highly recommended to; Develop a sharia-based eco-metaverse application. It is necessary to provide sharia-based eco-metaverse education, so that more people will build or join the eco-metaverse. In the application of sharia-based eco-metaverse, an institution is needed to oversee the consistency of the application of sharia principles in a transparent and interconnected eco-metaverse.

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⁴⁹Padma Nyoman Crisnapati and others, 'Hommons: Hydroponic Management and Monitoring System for an IOT Based NFT Farm Using Web Technology', in *2017 5th International Conference on Cyber and IT Service Management, CITSM 2017* (2017).

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